

# **Regional Site Distribution in South-Central New Castle County as Seen from the Sandom Branch Site Complex**

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## **Abstract**

The distribution of prehistoric archaeological sites in the central part of Delaware is examined using Cultural Resource Survey data from the Delaware State Historic Preservation Office, in Dover. Environmental variables found to be useful in the study were limited, due to constraints inherent in the database. The main finding of the analysis was a varying correlation between site distribution and proximity to water sources in tidal and non-tidal areas.

## **Introduction**

Planning and construction of the State Route 1 corridor, that connects Wilmington and Dover, has resulted in almost 20 years of archaeological investigations throughout central and northern Delaware. Prior to construction activity between Smyrna and Pine Tree Corners, data recovery excavations were conducted by Parsons at the Sandom Branch Site Complex, 7NC-J-227 and 7NC-J-7NC-J-228 (Bowen and Knepper 2003). The sites were situated on terraces overlooking a low-order tributary of Sandom Branch above its confluence with Blackbird Creek. The sites were generally characterized by a series of large, fire-cracked rock features representing discarded stone from indirect heating or stone boiling. Temporal data from the sites spanned most of the Archaic and Woodland periods, but the most intensive occupations, and those associated with the heated rock features in particular, appeared to have occurred in the Early-to-Middle Woodland period.

## **Methods**

To assess the regional context of the Sandom Branch sites, locational data for known prehistoric site components were plotted on maps of the southern part of New Castle County. Since modern political boundaries typically have little relevance to prehistoric settlement patterns, major watersheds were used as geographic bounds for the study. The Blackbird Creek watershed, within which the Sandom Branch Site Complex was situated, was the central focus of the study, while data for sites in watersheds to the north (the Appoquinimink River) and to the south (the northern half of the Smyrna River Valley) were included for comparative analysis. Cultural Resource Survey (CRS) data were obtained from the Delaware State Historic Preservation Office (DESHPO), which provided site locations in a digital database. Site attribute data were later transcribed from hard-copy site forms in the DESHPO site files, and the attribute data were

correlated with the locational database for spatial analysis through CRS numbers. Watershed maps used in the study were obtained from the Watershed Delineation Project, posted by the Spatial Analysis Lab of the University of Delaware (Mackenzie 1999). The hydrology (stream location) dataset was comprised of hydrographic linear features originating from USGS 1:24,000-scale digital line graphs for the State of Delaware, obtained through the Delaware Data Mapping and Integration Laboratory, also located at the University of Delaware (UDEL 2002).

## Results

In total, 444 prehistoric sites were recorded in the database within the portions of the three watersheds mapped in the study. Breaking down the total by temporal component, 41 sites were identified as having Late Woodland components, as noted in Table 1 and plotted in Figure 1. Differentiating pre-Late Woodland components proved more difficult. The chronology employed throughout on CRS site forms is the system proposed for Delmarva by Custer (1989). This chronology does not distinguish sub-periods between the start of the Late Archaic and the end of the Middle Woodland, grouping them instead under a single rubric, Woodland I. The chronology does, in fact, use regional complexes, such as Barker's Landing, Carey, or Webb, to subdivide the Woodland I. But these divisions were not reported consistently in the site files. Therefore, totals representing the more comprehensive Woodland I period are presented in Table 1 and were used in distribution plots (Figure 2) and the ensuing analyses.

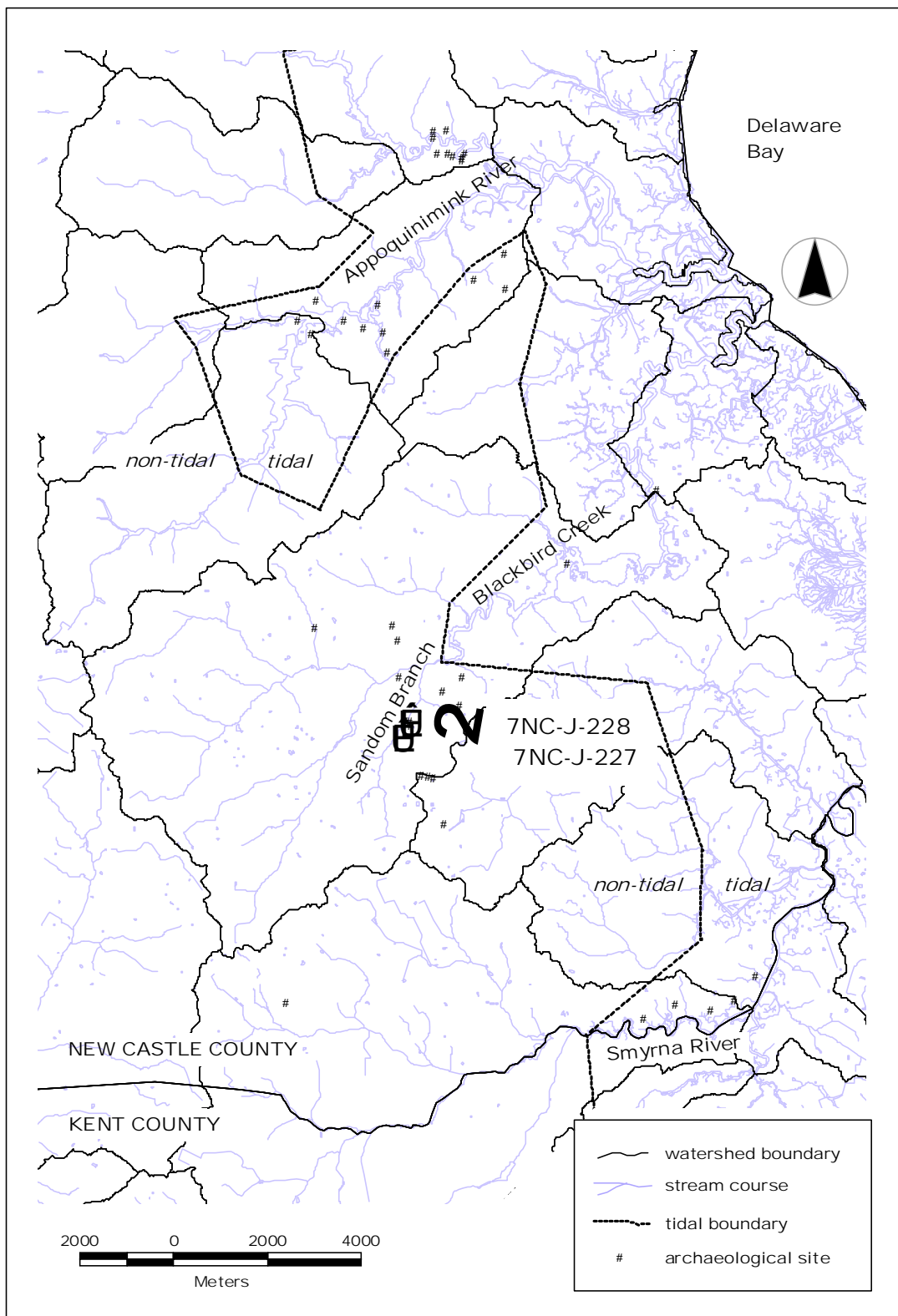
**Table 1. Distribution of Prehistoric Site Components in the Major Watersheds Near the Sandom Branch Sites.**

<i>watershed</i>	<i>prehistoric sites</i>	<i>Archaic-Middle Woodland sites (Woodland I)</i>	<i>Late Woodland sites</i>
<i>Blackbird Creek</i>	243	62	14
<i>Smyrna River (north)</i>	88	10	7
<i>Appoquinimink River</i>	93	23	20
<i>total</i>	424	95	41

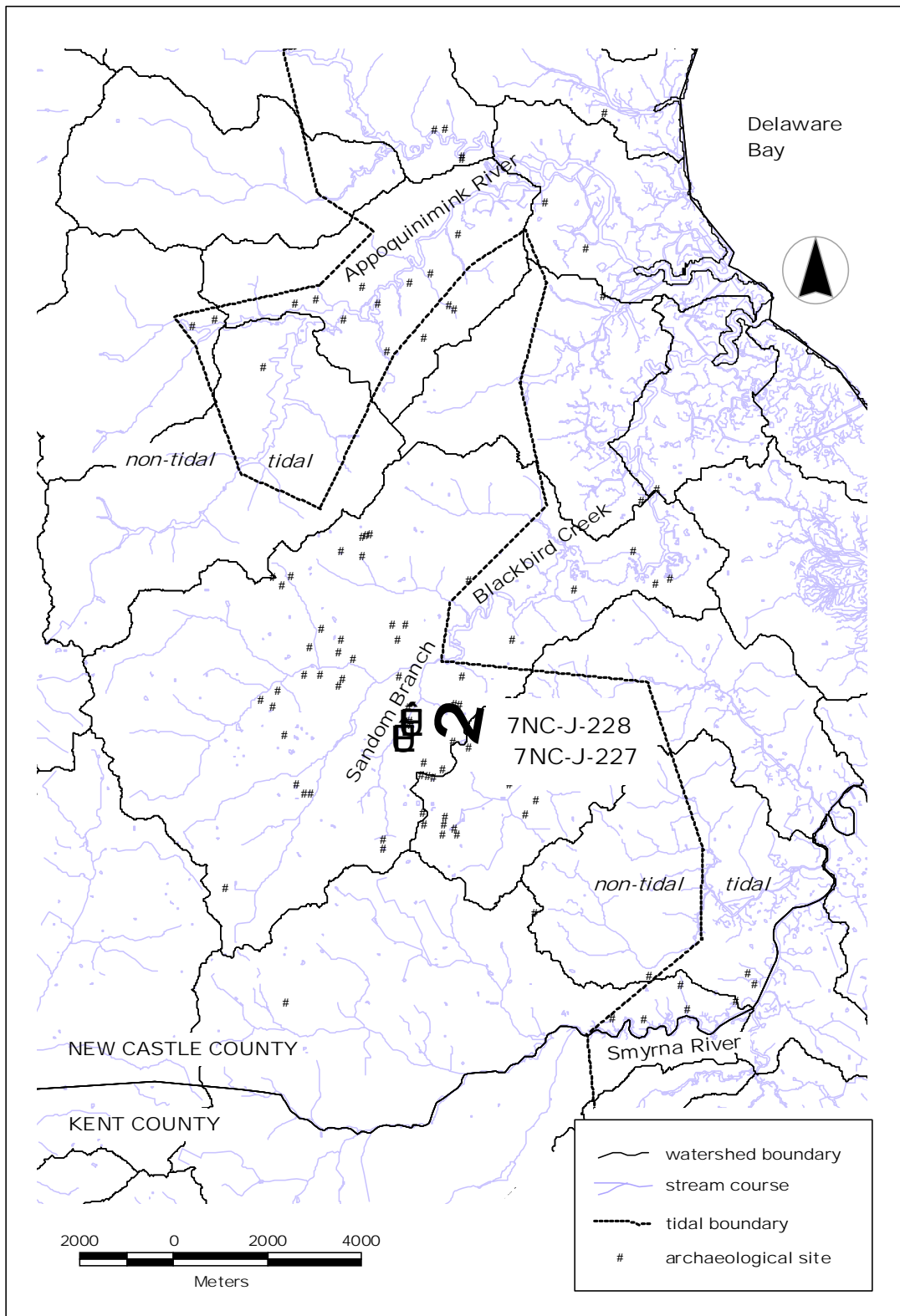
The most obvious difference in the distributions shown in the table was the seemingly lower frequency of sites containing Late Woodland components in comparison with earlier site components: 41 Late Woodland components *versus* 95 Woodland I components. This variation may be in large part an artifice of the way in which the data were grouped, since two very different time ranges are represented. The earlier, Woodland I distribution includes occupations spanning three sub-periods—the Late Archaic, Early Woodland, and Middle Woodland—and represents a range of as much as 2,500 years. The Late Woodland data, in contrast, represent a single sub-period comprising the last 600-700 years of regional prehistory, less than one-quarter of the time encompassed by the Woodland I period.

In addition to overall frequencies, other variations were noted in the distributions, including differences in the numbers of site components between the three watersheds—

for example, more than twice the number of sites were documented in the Blackbird Creek watershed in comparison with the Appoquinimink River watershed. These differences appeared to be as much a factor of sampling bias as of actual distribution patterning, since survey coverage of the regions has not necessarily been systematic.



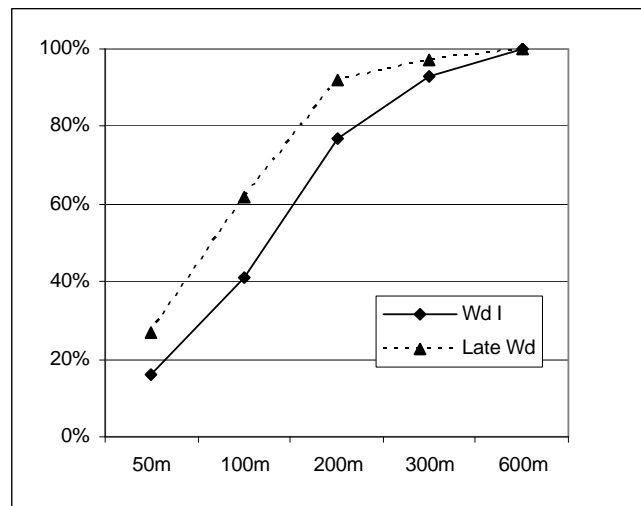
**Figure 1. Distribution of Sites with Late Woodland Components in Portions of the Blackbird Creek, Appoquinimink River, and Smyrna River Watersheds.**



**Figure 2. Distribution of Sites with Woodland I Components in Portions of the Blackbird Creek, Appoquinimink River, and Smyrna River Watersheds.**

### Distance to Water

Geographic data available for use in comparative analyses were limited. The major environmental variable that was reported consistently and thus could be mapped throughout the region was surface water. Using the USGS hydrology data noted above, the distance to water was calculated for each site component from the Late Woodland and Woodland I groups. The results were plotted as cumulative frequency distributions (Figure 3). The charts compare the proportion of sites lying at progressive intervals from water during the two periods. Given confidence that the data are representative of actual settlement patterns, the analysis suggested minor differences over time in the focus of site location with respect to water. Specifically, components tended to be situated close to water sources more frequently in later periods. For example, 60 percent of the Late Woodland sites occurred within 100 m of water, in contrast to 40 percent of the earlier sites. The difference narrowed at greater distances: the points in the two line charts converged at 300 m, indicating that over 90 percent of the sites from each period were at least 300 m from water, while all sites were located within 650 m of water.



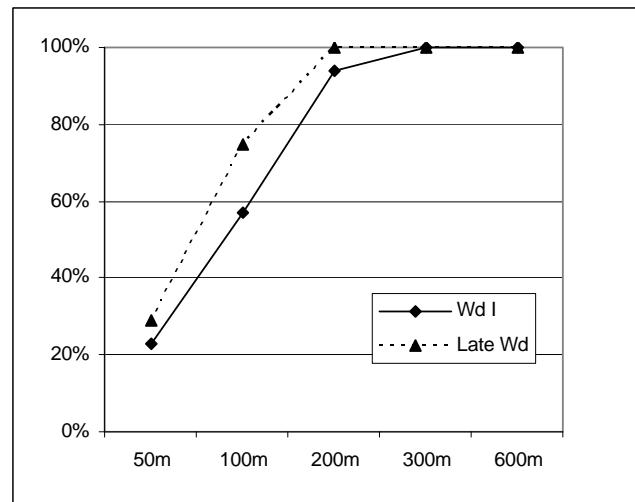
**Figure 3. Cumulative Frequency Distributions for Distance to Water Among Woodland I and Late Woodland Components.**

### Tidal vs. Non-Tidal Locations

The Sandom Branch sites were located in a physiographic zone known as the Mid-Drainage zone, an area that straddles tidal and non-tidal environments (the approximate tidal limit is mapped in Figures 1 and 2 as a heavy dotted line). The sites occurred above the tidal zone of Blackbird Creek, but within 50 m of water. To determine how common this placement might have been, and whether the location of sites in similar, non-estuary environments accounted for any variation in regional site distribution, the spatial analysis was re-run for subsets of the settlement data based on the tidal limits of regional streams.

In tidal areas, Woodland I and Late Woodland components were proportionately distributed in terms of distance to water (Figure 4). The frequency curves showed little

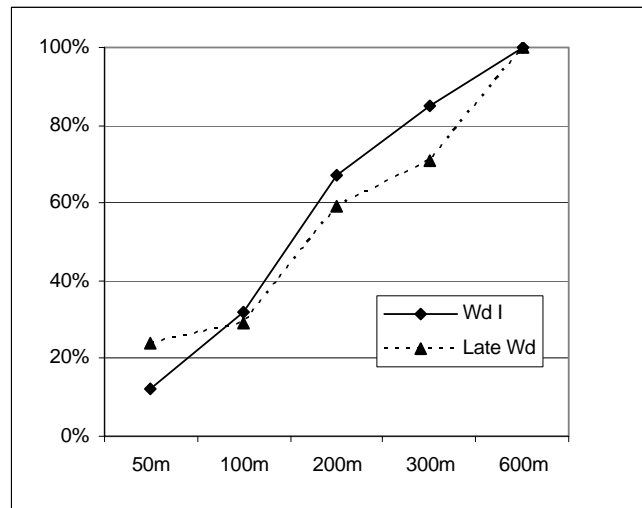
variation at any distance interval, the difference generally being less than 10 percent. In contrast, site components in tidal areas displayed a greater degree of variation (Figure 5). Site frequency was highest among Late Woodland components in the interval nearest water (50 m and 100 m), but dropped off in the mid-range (between 200 m and 300 m), where the line in the chart representing Late Woodland components falls below the line representing Woodland I components. This finding indicates lower frequencies of Late Woodland components at these distances. The analysis suggested that in tidal areas, settlement was more frequently focused on streams and their immediate resource bases. In non-tidal areas, by contrast, water may have been a less consistent factor in site location selection. That is, specific resources may have provided a more common motivation for site selection than proximity to water. A variety of factors may thus have influenced the shapes of the curves in the chart in Figure 5, with time period and proximity to water being only one set.



**Figure 4. Cumulative Frequency Distributions for Distance to Water Among Woodland I and Late Woodland Components in Tidal Areas.**

These findings—including a greater focus on near-stream settings in tidal areas during the Late Woodland—in part conform to existing models of Late Woodland settlement in central Delmarva. These models propose an increase in sedentism during the period, seen especially in the intensified use of major floodplain settings associated with the introduction of horticulture (Thomas et al. 1975; Custer 1989). The models hold that non-tidal, upland areas continued to be used for specific resource collection. The exploitation of wild resources was an enduring practice that was particularly important in Delmarva, where full reliance on agriculture does not seem to have developed as it did in other parts of the Middle Atlantic. And in fact, Custer suggests that little significant change in upland landscape use can be demonstrated in central and northern Delmarva throughout the Woodland period. He notes that Late Woodland base camps in the region lack evidence, such as house patterns, storage pits, or middens that would imply long-term habitation. Further, Late Woodland sites tend to be located directly over Woodland I sites, indicating little change in settlement patterning. The results of the current analysis

similarly suggest that in non-tidal, upland areas, a varied resource focus prevailed from earlier periods.



**Figure 5. Cumulative Frequency Distributions for Distance to Water Among Woodland I and Late Woodland Components in Non-Tidal Areas.**

## Conclusions

The data set used in this analysis, while limited in terms of systematic coverage and the extent of the environmental variables employed, did provide indications of variability in site settlement patterning in the region based on both occupation period and location with respect to estuary environments. In this simplified analysis, variations in site selection and the focus of site activities were suggested between Late Woodland and earlier, Woodland I occupations, as well as between sites in tidal and non-tidal areas. Further analyses conducted with larger, probabilistic samples might be able to elicit more significant trends in the data and likewise determine sources of any variation discovered. By broadening the depth of the database to include consideration of other variables, such as site size, artifact assemblage characteristics, or landform attributes, additional context for interpretation of the analytical results should be possible.



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